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EXAMINER

HEINRICHS, CHRISTOPHER P

ART UNIT PAPER NUMBER

2663

DATE MAILED: 03/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/939,447

**Applicant(s)**

SHARMA ET AL.

**Examiner**

Christopher P. Heinrichs

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/19/2002</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: In the detailed description, page 10 line 17 of specification, the text "...the network configuration 300 of Fig. 1 is shown..." should be amended to read "...the network configuration 300 of Fig. 3 is shown..."

Appropriate correction is required.

### ***Claim Objections***

2. Claims 2, 5, 8, 14, 15, 18, 21, and 23 are objected to because of the following informalities: The use of the term "re-transmitting" implies that a data packet is lost and needs to be sent to a recipient again. The examiner believes, based on fig. 6 item 608 of the instant application, that the applicant uses "re-transmitting" as a substitute term for the commonly used "forward" when the function of the invention is actually to forward as opposed to re-transmit. "Forward" will be considered. Appropriate correction is required.

3. Claims 8, 17, 22, 24 are objected to because of the following informalities: the use of the phrase "...associating one of a plurality of QoS codes with each of a plurality of QoS levels..." is not consistent with the specification. The mapping of one QoS code

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to each QoS level provides no distinction of QoS level for that code, as all of the levels will be associated with that single code. Appropriate wording is "...associating one of a plurality of QoS codes with one of a plurality of QoS levels..." These claims will be considered in the proposed corrected form. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 14 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claims 14 and 15 recite the limitation "The method in accordance..." in lines 1 and 1, respectively. There is insufficient antecedent basis for this limitation in the claim.

Claim 14 depends on a claim of an apparatus, and claim 15 depends on claim

14. It is assumed that claims 14 and 15 should read "The apparatus in accordance..." and will be so considered.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-3, 5-6, 10-14, 16, 18-19, 21, and 23 are rejected under 35

U.S.C. 102(e) as being anticipated by U.S. Patent 6,643,260 B1 to Kloth et al.

9. Regarding claims 1 and 10, Kloth discloses an apparatus (col 10 lines 10-12) (that performs the method of claim 1) for providing Quality of Service (QoS) routing of a network packet, the apparatus comprising means for inserting (port) a QoS code (DS/ToS field) into an Internet Protocol (IP) address of the network packet (fig 1c) (col 14 lines 14-19, also refer to col 4 lines 63-65).

10. Regarding claims 2 and 11, Kloth fully discloses the apparatus and method of claims 1 and 10. Kloth further discloses means for checking unused bits of the IP address to read the QoS code (col 10 lines 18-19, wherein the packet is of the type of fig 1A, described in col 1 lines 30-31, and item 18 of fig 1A, the optional flow information, is unused until the option is exercised) upon receiving (col 10 line 13) the network packet at an intermediate node on a network (apparatus of claim 10 taught by Kloth) and means for re-transmitting (output port, col 14 lines 10-11) the received network packet from the intermediate node with the QoS indicated by the QoS code (col

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14 lines 12-14, and col 8 lines 13-24). The apparatus disclosed by Kloth performs the method of claim 2.

11. Regarding claims 3 and 12, Kloth fully discloses the apparatus and method of claims 2 and 11. Kloth further discloses means for storing the QoS code in the intermediate node (L3 table, col 10 lines 18-23). The apparatus disclosed by Kloth performs the method of claim 3.

12. Regarding claims 5 and 13, Kloth discloses an apparatus for providing quality of service (QoS) routing of a network packet (col 10 lines 10-12) comprising means for checking unused bits of an Internet Protocol (IP) address associated with the network packet to read a QoS code therein (col 10 lines 18-19, wherein the packet is of the type of fig 1A, described in col 1 lines 30-31, and item 18 of fig 1A, the optional flow information, is unused until the option is exercised) upon receiving (col 10 line 13) the network packet at an intermediate node on a network (apparatus of instant claim) and means for re-transmitting (output port, col 14 lines 10-11) the received network packet from the intermediate node with the QoS indicated by the QoS code (col 14 lines 12-14, and col 8 lines 13-24). The apparatus disclosed by Kloth performs the method of claim 5.

13. Regarding claims 6 and 14, Kloth fully discloses the apparatus and method of claims 5 and 13. Kloth further discloses means for storing the QoS code in the

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intermediate node (L3 table, col 10 lines 18-23). The apparatus disclosed by Kloth performs the method of claim 6.

14. Regarding claim 16, Kloth fully discloses a method for providing Quality of Service (QoS) routing of a network packet through a network comprising inserting a QoS code into an Internet Protocol (IP) address of the network packet as set forth in claim 1. Kloth further discloses that the method steps are implemented using ASIC technology (col 4 lines 10-14), which is both a medium for recording program instructions and means for executing said instructions.

15. Regarding claim 18, Kloth fully discloses the medium of claim 16. Kloth further discloses the method steps of the executable program instructions of claim 18 in claim 2. The steps of claim 2 disclosed by Kloth may also be implemented by the disclosed ASIC technology.

16. Regarding claim 19, Kloth fully discloses the medium of claim 18. Kloth further discloses the method steps of the executable program instructions of claim 19 in claim 3. The steps of claim 3 disclosed by Kloth may also be implemented by the disclosed ASIC technology.

17. Regarding claim 21, Kloth fully discloses the method steps of the executable program instructions of claim 21 in claim 5. Kloth further discloses that the method

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steps are implemented using ASIC technology (col 4 lines 10-14), which is both a medium for recording program instructions and means for executing said instructions.

18. Regarding claim 23, Kloth discloses a method for providing Quality of Service (QoS) routing of a network packet through intermediate nodes on a network, said method comprising the steps of checking unused bits of an Internet Protocol (IP) address associated with the network packet to read a QoS code therein (fig 2 item 63, and col 10 lines 18-19, wherein the packet is of the type of fig 1A, described in col 1 lines 30-31, and item 18 of fig 1A, the optional flow information, is unused until the option is exercised) upon receiving (fig 2 item 60 and col 10 line 13) the network packet at an intermediate node on a network (apparatus of instant claim), storing the network packets in queues based upon the QoS indicated by the QoS code (fig 2 item 70 and fig 5D items 262, 264, 266) and reading said network packets from said queues in a preferential manner (col 8 lines 7-11) and re-transmitting the stored network packets read from the queues with the QOS indicated by the QOS code (fig 2 item 72).

### ***Claim Rejections - 35 USC § 103***

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

21. Claims 4, 7-9, 15, 17, 20, 22, and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent #6,643,260 to Kloth et al. in view of U.S. Patent #6,483,805 to Davies et al.

22. Regarding claims 4, 7, 15, and 20, Kloth fully discloses all of the limitations of claims 3, 6, 14, and 19, respectively but does not teach that the IP address comprises an IP version 6 address. However, Davies discloses an Internet Protocol version 6 address with QoS code (col 11 lines 48-53). It would have been obvious to one ordinarily skilled in the art at the time of the invention to use the inventions disclosed by Kloth with the IP version 6 address containing QoS information taught by Davies. The motivation to do so would have been that IP version 6 addressing was the next level of evolution of IP addressing, and any new methods or apparatus for QoS routing should accommodate IP version 6 addresses.

23. Regarding claim 8, Kloth teaches inserting one of the QoS codes into unused bits of an IP address of the network packet as set forth in the rejection of claim 1. Kloth

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further discloses checking the unused bits of the IP address to read the QoS code therein upon receiving the network packet at an intermediate node on a network and re-transmitting the received network packet from the intermediate node with the QoS indicated by the QoS code, as set forth in the rejection of claim 2. Kloth fails to disclose associating one of a plurality of QoS codes with each of a plurality of QoS levels, and Kloth fails to disclose that the unused bits into which QoS codes are inserted and which are checked to read QoS codes be bits of an IPv6 address. However, Davies discloses an Internet Protocol version 6 address with QoS code (col 11 lines 48-53) and associating that code (DS codepoint) with a plurality of levels (Forwarding Class) (col 11 line 54 – col 12 line 18). It would have been obvious to one ordinarily skilled in the art at the time of the invention to include the IPv6 address QoS method taught by Davies with the QoS method taught by Kloth to arrive at the method of claim 8. The motivation would have been to allow the QoS method taught by Kloth to accommodate an IPv6 address, which is a growing standard. Also, the association of one of a plurality of QoS codes with QoS levels would be necessary for the codes to have any useful meaning.

24. Regarding claim 9, Kloth and Davies fully disclose all aspects of the invention of claim 8. Kloth further discloses the step of storing QoS code (col 10 lines 18-23) in the intermediate node (apparatus, col 10 lines 10-12).

25. Regarding claims 17 and 22, Kloth fully discloses all aspects of the inventions of claim 16 and 21, respectively, but fails to disclose that the computer readable medium

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store program instructions for associating one of a plurality of QoS codes with each of a plurality of QoS levels. However, Davies teaches said association as set forth in the rejection of claim 8. It would therefore have been obvious to one ordinarily skilled in the art at the time of the invention to include the method taught by Davies in the method taught and recorded by Kloth, with motivation as set forth in the rejection of claim 8, and it would also have been obvious that the included new step and associated program instructions would be stored on the computer readable medium disclosed by Kloth.

26. Regarding claim 24, Kloth fully discloses all aspects of the invention of claim 23 and further discloses storing a plurality of QoS codes (table, col 10 lines 18-23) in the intermediate node (apparatus, col 10 lines 10-12) and determining the QoS level that a network packet should be retransmitted (fig 5D items 256 and 264) with by using the QoS code read from the network packet (fig 5A item 204). Kloth fails to disclose associating one of a plurality of QoS codes with each of a plurality of QoS levels. However, Davies discloses the association of one of a plurality of QoS codes with each of a plurality of QoS levels as set forth in the rejection of claim 8. It would have been obvious to one ordinarily skilled in the art at the time of the invention to include the association of Davies in the invention of Kloth to arrive at the invention of claim 24. The motivation would have been that the association of one of a plurality of QoS codes with QoS levels would be necessary for the codes to have any useful meaning.

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27. Regarding claim 25, Kloth and Davies fully disclose all aspects of the invention of claim 24. Kloth fails to disclose the IP version 6 address. However, Davies discloses an Internet Protocol version 6 address with QoS code (col 11 lines 48-53). It would have been obvious to one ordinarily skilled in the art at the time of the invention to use the the IP version 6 address containing QoS information taught by Davies with the inventions disclosed by Kloth to arrive at the invention of claim 25. The motivation to do so would have been that IP version 6 addressing was the next level of evolution of IP addressing, and any new methods or apparatus for QoS routing should accommodate IP version 6 addresses.

### ***Conclusion***

28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


- a. Chen et al., U.S. Patent #6,658,006 B1, System and Method for Communicating data Using Modified Header Bits to Identify a Port.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Heinrichs whose telephone number is 571-272-8397. The examiner can normally be reached on Monday through Friday, 8:30am to 5:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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PRIMARY EXAMINER  
